National Institute of Environmental Health Sciences

Relationship between mean daily ambient temperature range and hospital admissions for schizophrenia: Results from a national cohort of psychiatric inpatients

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Abstract:

Environmental temperature is known to correlate with schizophrenia, but little is known about the association with changes in temperature. This 12-year study aimed to evaluate the relationship between the mean daily range of ambient temperature and schizophrenia admissions in a national cohort of psychiatric inpatients in Taiwan. Meteorological data provided by the Central Weather Bureau of Taiwan were interpolated to create representative estimates. Psychiatric inpatient admissions in all hospitals with medical services enrolled in the current health care insurance system were retrieved from the 1996-2007 Psychiatric Inpatient Medical Claim dataset of the National Health Insurance Research Database. Generalized linear models with Poisson distributions were used to analyze the impact of mean diurnal change of temperature on schizophrenia admissions, controlling for internal correlations and demographic covariates. The daily temperature range varied between 1.7 degrees C and 12.1 degrees C (1st to 99th percentile). The relative risk of schizophrenia admission was significantly increased at a temperature range of 3.2 degrees C (10th percentile), and the maximum was at 12.1 degrees C (99th percentile); however, no such association was found with schizoaffective disorder. When restricted to the capital and largest city, the effects of temperature range were prominent and may correlate with temperature itself. The joint effect of temperature and temperature range was associated with elevated risk, particularly at cooler temperatures. A positive correlation was found between increasing temperature range and schizophrenia admissions. The increase in morbidity at high percentiles suggests that the increasing dynamics of temperature range are a valid reflection of risk, highlighting the need for precautionary action.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: Taiwan

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Mental Health/Stress

Mental Health Effect/Stress: Schizophrenia/Delusional Disorder

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified